Top DNA Polymerase

Top DNA polymerase is a novel thermostable polymerase that is more processive than *Taq*. In fact, the extension rate of Top is > 3 x that of *Taq* polymerase! Top polymerase can be used for a variety of PCR applications and is a robust enzyme for everyday PCR.

Applications

- Standard PCR up to 10 kb
- TA Cloning
- DNA Sequencing

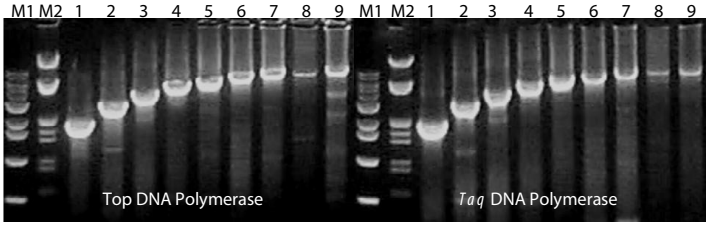


Fig 1. Long PCR amplification test of Top DNA polymerase and *Taq* DNA polymerase using Lambda DNA. Note robust amplification from Top polymerase out to 10 kb.

Lane M1: 1 kb DNA Ladder (D-1040)
Lane M2: Lambda DNA/Hind III Marker (D-1050)
Lane 1: 2 kb PCR product
Lane 2: 3 kb PCR product
Lane 3: 4 kb PCR product
Lane 4: 5 kb PCR product
Lane 5: 6 kb PCR product
Lane 6: 7 kb PCR product
Lane 7: 8 kb PCR product
Lane 8: 9 kb PCR product
Lane 9: 10 kb PCR product
*10 ng of Lambda DNA and 1U of each DNA polymerase used for amplification.

HotStart DNA Polymerase

Bioneer's HotStart DNA polymerase uses an exclusive enzyme-mediated HotStart method that, unlike most other HotStart chemistries, completely releases all polymerase activity during the first denaturation step. Top DNA polymerase is completely inhibited by pyrophosphate at temperatures below 70°C. However, at temperatures above 70°C, a thermostable pyrophosphatase initiates pyrophosphate hydrolysis and activates the DNA polymerase. This prevents the formation of non-specific products and primer-dimers during the reaction set-up process and results in improved PCR specificity.

Applications

- HotStart PCR up to 12 kb
- PCR with complex genomic templates/low copy templates/cDNA
- Multiplex PCR reactions

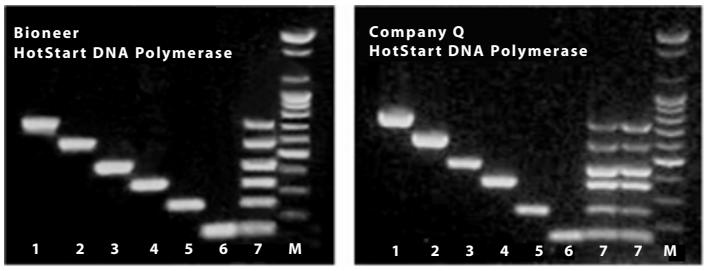


Fig 2. Multiplex PCR comparison of genomic DNA using 6 sets of primers and 2 different DNA polymerases. Note uniform amplification of multiplex products with Bioneer's HotStart chemistry.

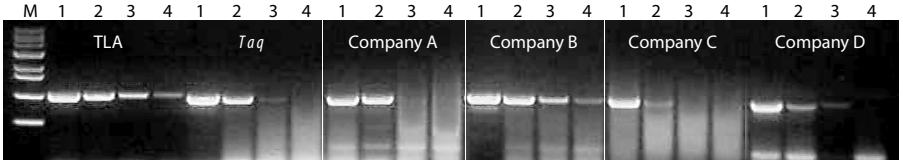
Lane M: 100 bp DNA Ladder (D-1030)
Lane 1: 750 bp fragment
Lane 2: 590 bp fragment
Lane 3: 450 bp fragment
Lane 4: 360 bp fragment
Lane 5: 260 bp fragment
Lane 6: 150 bp fragment
Lane 7: Multiplex PCR with primers used for Lane 1 to 6

TLA DNA Polymerase

AccuPower® TLA DNA polymerase provides both high fidelity and long range PCR capabilities. TLA DNA polymerase also features an enhanced processivity (TLA's base incorporation rate is almost 2 x as fast as *Taq*) that makes it ideal for your long range and standard PCR applications.

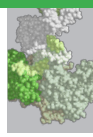
Applications

- Gene synthesis
- PCR or primer extension requiring high fidelity (up to 20 kb)
- Blunt end PCR cloning
- Mutagenesis



M: 1 kb DNA Ladder (D-1040)
TLA: TLA DNA polymerase
Taq: *Taq* DNA polymerase
Lane 1: 10 pg of λ DNA
Lane 2: 1 pg of λ DNA
Lane 3: 100 fg of λ DNA
Lane 4: 10 fg of λ DNA

Fig 3. 1 kb amplification of Lambda DNA using TLA DNA polymerase and other competitors' proofreading enzymes. Note that TLA efficiently amplifies very low copy numbers or template.



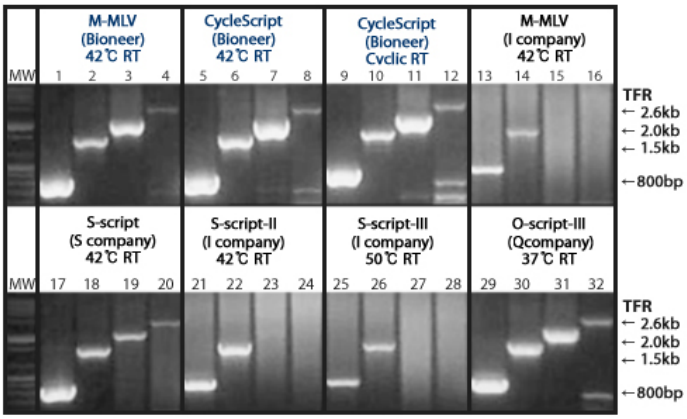
CycleScript™ Reverse Transcriptase

CycleScript Reverse Transcriptase synthesizes cDNA from RNA with high activity across a wide range of temperatures from 37°C to 55°C. Reverse transcription can thus be carried out similar to PCR (Cyclic RT). The Cyclic RT reaction is composed of the following steps and is repeated to generate homogeneous cDNA: incubation at 15 to 40°C for primer annealing and extension; heating up to 45 to 48°C for extension (optional); and finally incubation at 50 to 55°C for denaturation of the secondary structure of the RNA. This kit can also be used for conventional reverse transcription.

Applications

- Gene synthesis
- First-strand cDNA synthesis from RNA, up to 9 kb
- cDNA or RNA sequencing
- Random primer probe labeling
- cDNA library construction
- RT-PCR
- mRNA 5′-end mapping by primer extension

Fig 4. Comparison of transferrin receptor gene amplification with Cyclic RT, conventional RT and other companies' products. Note specific and robust amplification of this rare gene using a Cyclic RT reaction with CycleScript.



Lane MW: 100 bp plus DNA Ladder (D-1035)
Lane 1 - 4: TFR (Transferrin receptor gene) amplified with MMLV (E-3121)
Lane 5 - 8: TFR amplified with CycleScript (E-3131)
Lane 9 -12: TFR amplified with CycleScript (E-3131)
Lane 13 - 16: TFR amplified with MMLV from company I
Lane 17 - 20: TFR amplified with S-script from company S
Lane 21 - 24: TFR amplified with S-script-II from company I
Lane 25 - 28: TFR amplified with S-script-III from company I
Lane 29 - 32: TFR amplified with O-script from company Q

*700 ng of total RNA used for RT and the same amount of RT products used for electrophoresis.

Try before you buy!

Visit **http://us.bioneer.com/sample** and qualify for a free sample of our enzymes.
In addition, if you respond to a short survey after you try our product, you can take 50% off your first order!

Ordering Information

Product Description	Cat No.	Price
Top DNA Polymerase, 500 U, 10 mM dNTPs, 10 x Reaction Buffer with $MgCl_2$	E-3100	$119.00
Top DNA Polymerase, 500 U, 10 mM dNTPs, 10 x Reaction Buffer, 20 mM $MgCl_2$	E-3100-1	119.00
Top DNA Polymerase, 500 U, 10 x Reaction Buffer with $MgCl_2$	E-3100-2	83.00
Top DNA Polymerase, 500 U, 10 x Reaction Buffer, 20 mM $MgCl_2$	E-3100-3	83.00
Top DNA Polymerase, 2,000 U, 10 mM dNTPs, 10 x Reaction Buffer with $MgCl_2$	E-3101	407.00
Top DNA Polymerase, 2,000 U, 10 mM dNTPs, 10 x Reaction Buffer, 20 mM $MgCl_2$	E-3101-1	407.00
Top DNA Polymerase, 2,000 U, 10 x Reaction Buffer with $MgCl_2$	E-3101-2	303.00
Top DNA Polymerase, 2,000 U, 10 x Reaction Buffer, 20 mM $MgCl_2$	E-3101-3	303.00
HotStart DNA Polymerase, 250 U, 10 mM dNTPs, 10 x Reaction Buffer with $MgCl_2$	E-3150	120.00
HotStart DNA Polymerase, 250 U, 10 x Reaction Buffer with $MgCl_2$	E-3150-1	87.00
HotStart DNA Polymerase, 1,000 U, 10 mM dNTPs, 10 x Reaction Buffer with $MgCl_2$	E-3151	384.00
TLA DNA Polymerase, 250 U, 10 mM dNTPs, 10 x Reaction Buffer with $MgCl_2$	E-3200	170.00
TLA DNA Polymerase, 1,000 U, 10 mM dNTPs, 10 x Reaction Buffer with $MgCl_2$	E-3201	575.00
CycleScript Reverse Transcriptase, 10,000 U, 5 x Reaction Buffer, 100 mM DTT, 10 mM dNTPs	E-3131	165.00
CycleScript Reverse Transcriptase, 50,000 U, 5 x Reaction Buffer, 100 mM DTT, 10 mM dNTPs	E-3132	540.00
5 x Reaction Buffer for CycleScript Reverse Transcriptase	E-3133	55.00
MMLV Reverse Transcriptase, 10,000 U, 5 x Reaction Buffer, 100 mM DTT	E-3121	48.00
MMLV Reverse Transcriptase, 50,000 U, 5 x Reaction Buffer, 100 mM DTT	E-3122	198.00

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